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REMARKS

By this amendment, claims 1, 4, 6 and 14 have been amended. Claims 1-14 remain pending in the application for further consideration by the Examiner.

35 U.S.C. 102(b) Rejection

Claims 1-7 and 14 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,608,682 ("Nagashima et al."). Claims 1, 4, 6 and 14 have been amended to more clearly point out that which Applicant regards as the invention. Support for these amendments can be found in the original claims and throughout the specification, *see inter alia*, on page 5, line 16-30, on page 8, lines 10-28, and so on.

Applicant respectfully submits that the Nagashima et al. reference neither teaches nor suggests each and every limitation recited in independent claims 1, 4, 6 and 14, as amended herein. In particular, each of claims 1, 4, 6 and 14 includes similar limitations that require an injection current having an amplitude such that the optical gain process and optical absorption process within a semiconductor laser element balance one another longer than the retention time in order to keep a digital optical signal on a predetermined digital level during the retention time. As described throughout Applicant's specification, the injection current is therefore held at the threshold of laser operation during the retention time (see, e.g., page 5, lines 16 to 30, page 8, lines 10-28). This claimed aspect of Applicant's invention is advantageous in that, when the laser has to be reset by optical output being interrupted, the time to undertake this clearing operation is faster than if the laser was operating with a higher injection current providing an optical output. This is particularly advantageous, for example, when data transmission rates are high because the time for clearing is a significant factor in total speed of data handling.

Nagashima et al. is directed to an optical time-division switching system that employs optical bistable devices, such as laser diodes (see, e.g., lasers 81-84 (Figure 2), Figures 3a-3d, and the accompanying description on col. 4, lines 14-68). In contrast to Applicant's claimed invention, Nagashima et al. show that, during the "retention" time of the bistable device, the injection current is i_b (see Figure 3b). As shown and described, the laser of Nagashima et al., at injection current i_b , is then beyond the threshold of laser operation so as to give significant optical output A or B. Consequently, the arrangement in Nagashima et al. does not show an injection current having an amplitude such that the optical gain process and optical absorption process within a semiconductor laser element balance one another longer than the retention time as claimed by Applicant.

Because Nagashima et al. fail to teach or suggest at least this aspect of Applicant's invention, as set forth in independent claims 1, 4, 6 and 14, Applicant submits that the

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Nagashima et al. reference therefore does not anticipate claims 1, 4, 6 and 14 and respectfully requests that the Examiner withdraw the rejections accordingly.

Because claims 2-3, 5 and 7 each depend from respective base claims 1, 4 or 6, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for claims 1, 4 and 6 as well as for other novel features therein.

35 U.S.C. 103(a) Rejection

Claims 8 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nagashima et al. Applicant respectfully traverses this rejection. Because claims 8 and 9 depend from independent claim 6, these dependent claims are therefore also believed to be allowable for the same reasons set forth above in the preceding discussion of the 35 U.S.C. §102(b) rejection of base claim 6 over Nagashima et al. as well as for other novel features recited therein. More specifically, claims 8 and 9 include all the limitations of amended base claim 6, which Applicant believes are not at all taught or suggested by Nagashima et al. as previously indicated. As such, claims 8 and 9 are therefore believed to be patentable over Nagashima et al. by virtue of their dependency from independent claim 6. Accordingly, Applicant therefore respectfully requests that the Examiner withdraw the rejection of claims 8 and 9 under 35 U.S.C. §103(a).

35 U.S.C. 103(a) Rejection

Claims 10-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nagashima et al. in view of U.S. Patent No. 6,104,477 ("Yoshida et al."). Applicant respectfully traverses this rejection.

Claims 10-13 are dependent from base claim 6 and therefore include all the limitations of base claim 6. Consequently, the foregoing remarks corresponding to the preceding 35 U.S.C. 102(b) rejection of claim 6 in view of Nagashima et al. apply equally to dependent claims 10-13 and are incorporated by reference accordingly.

In particular, because the Nagashima et al. reference does not teach or suggest each and every limitation of base claim 6, as amended, and because the Yoshida et al. reference does not supply the missing limitations and therefore does not cure the deficiencies of the Nagashima et al. reference, dependent claims 10-13 are therefore believed to be patentable for the same reasons set forth above for base claim 6 in the preceding rejection as well as for other novel features therein. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claims 10-13 under 35 U.S.C. §103(a).

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Conclusion

In view of the foregoing, Applicant believes that all pending claims stand in condition for allowance. Accordingly, Applicant respectfully requests reconsideration of the application and passage of the case to issue. Any questions can be directed to the Applicant's attorney at the number below.

Respectfully submitted,

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